

Claims



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an analog of said peptides comprising conservative amino acid substitutions.

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3) Peptide and/or chemical structure comprising any of the peptides according to claims 1 or 2, fused to a linker molecule.

5 4) Circularized peptide that comprises at least one of the peptides according to any of the claims 1 to 3.

5) Peptide comprising and/or consisting of tandem repeats of at least two of any of the peptides of claims 1 to 4.

10 6) Branched peptide that comprises at least one of the peptides according to any of the claims 1 to 5.

15 7) Method for producing a peptide according to any of claims 1 to 6, by classical chemical synthesis, wherein methylated arginines are substituted for unmethylated arginine residues during the chemical synthesis.

20 8) Method for producing a peptide according to any of claims 1 to 6, wherein the primary amino acid sequence is produced by classical chemical synthesis, and wherein the arginine residues that precede glycine residues are subsequently methylated by contacting said peptide with a protein arginine methyltransferase.

9) Method for producing a peptide of any of claims 1 to 6 comprising the following steps:

25 -transforming an appropriate cellular host with a recombinant vector in which a polynucleic acid is inserted comprising the sequence that codes for said peptide under the control of the appropriate regulatory elements such that said peptide or a protein comprising said peptide is expressed and/or secreted,

30 -culturing said transformed cellular host under conditions allowing expression of said protein or peptide and allowing a partial or optimal methylation of the arginines present in said peptide,

-harvesting said peptide.

10) Method for producing a peptide of any of claims 1 to 6 comprising the following steps:

- transforming an appropriate cellular host with a recombinant vector in which a polynucleic acid is inserted comprising the sequence that codes for said peptide under the control of the appropriate regulatory elements, such that said peptide or a protein comprising said peptide is expressed and/or secreted,
- culturing said transformed cellular host under conditions allowing expression of said protein or said peptide,
- harvesting said protein or said peptide,
- methylating arginine residues of said protein or said peptide by contacting with a protein arginine methyltransferase.

11) Method according to any of claims 9 or 10, wherein said host cell is a bacterial host or yeast or any other eukaryotic host cell which is preferably transformed with a recombinant baculovirus.

12) An antibody raised upon immunization with a peptide according to any of the claims 1 to 6, with said antibody being specifically reactive with the methylated forms of said peptide, and with said antibody being preferably a monoclonal antibody.

13) Anti-idiotypic antibody raised upon immunization with an antibody according to claim 12, with said anti-idiotypic antibody being specifically reactive with the antibody of claim 12, thereby mimicking the methylated form of a peptide according to any of claims 1 to 6, and with said antibody being preferably a monoclonal antibody.

14) An immunotoxin molecule comprising and/or consisting of cell recognition molecule being a peptide of any of claims 1 to 6, or an antibody according to any of the claims 12 or 13, covalently bound to a toxin molecule or active fragment thereof.

15) A peptide according to any of the claims 1 to 6 or an antibody according to any of claims 12 or 13 or an immunotoxin molecule according to claim 14 or a composition thereof for use as a medicament.

5 16) Use of a peptide according to any of claims 1 to 6 or an antibody according to any of claims 12 or 13 or an immunotoxin molecule according to claim 14 or a composition thereof for the preparation of a medicament or of a diagnosticum for auto-immune diseases such as:

- systemic lupus erythematosus,
- 10 -discoid lupus erythematosus,
- scleroderma,
- dermatomyositis,
- rheumatoid arthritis,
- Sjögren's syndrome.

15 or for diseases in which Epstein-Barr can be implicated such as:

- Burkitt's lymphoma,
- nasopharyngeal carcinoma,
- infectious, recurrent or chronic mononucleosis,

20 17) Use of a polypeptide according to claim 1 to 6 or a composition thereof for the preparation of a medicament to treat auto-immune diseases by increasing the size of antigen-immune complexes, thereby improving the clearance of the formed immune complexes.

25 18) Use of a polypeptide according to claim 1 to 6 or a composition thereof for the preparation of a medicament for oral administration to treat auto-immune diseases by inducing a state of systemic hyporesponsiveness to the said polypeptide ('Oral tolerance').

30 19) A diagnostic kit for use in detecting auto-immune diseases such as:

- systemic lupus erythematosus,

- discoid lupus erythematosus,
- scleroderma,
- dermatomyositis,
- rheumatoid arthritis,
- 5 -Sjögren's syndrome,

or for detecting diseases in which Epstein-Barr can be implicated such as:

- Burkitt's lymphoma,
- nasopharyngeal carcinoma,
- Hodgkin's disease,
- 10 -infectious, recurrent or chronic mononucleosis,

said kit comprising at least one peptide according to any of claims 1 to 6, or an antibody according to claims 12 or 13, with said peptide or antibody being possibly bound to a solid support.

15 20) A diagnostic kit according to claim 19, said kit comprising a range of peptides according to any of claims 1 to 6 or of antibodies according to claims 12 or 13, possibly in combination with native methylated SmD1 or SmD3 and recombinant unmethylated SmD1 or SmD3, wherein said peptides are attached to specific locations on a solid substrate.

20 21) A diagnostic kit according to claim 19 or 20, wherein said solid support is a membrane strip and said polypeptides are coupled to the membrane in the form of parallel lines.

- natural SmD (1,2 or 3) or in vitro dimethylated SmD (1,2 or 3)
- 25 -unmethylated SmD expressed in E.coli (1,2 or 3)
- peptide of any of claims 1 to 6

30 22) A diagnostic kit according to any of claims 19 to 21 wherein certain peptides are not attached to a solid support but are provided in the binding solution to be used as competitors and/or to block other antibodies that are present in sera from patients with autoimmune disease other than SLE, thereby decreasing or

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eliminating possible cross-reaction/and/or aspecific binding.

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Year	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
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